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Role of Antibiotics in poultry health and growth

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ABSTRACT

The purpose of using antibiotics in poultry production are to monitor on animal health, growth and feed/ratio conversion. They are mainly used in the control of bacteriosis due to Salmonella, Escherichia coli Campylobacter, and in growth promotion in animals. It has however been used rather frequently that has however resulted in rather worrying trend of evolving antibiotic resistance that affects both animal and human use. They have thus stepped up efforts to eliminate the application of antibiotics particularly in growth enhancement and promote the prudent use. For this reason, other practices such as use of Probiotics, prebiotics, vaccines, and phytogenic are being viewed as others to the antibiotics in managing poultry health and production. The other one is ethical issues such as the risks associated with antibiotic residues in animal-generated products and consumer concern and desires for antibiotic-free foods. This review therefore considers the application of Antibiotics in Poultry production, issue of resistance and new opportunities for better Poultry production.

Key words

Antibiotics, Poultry Health, Antibiotic Resistance, Growth Promotion and now, antibiotic uses.

INTRODUCTION

Merely, it has been realized that antibiotics act as one of the most important attributes of the contemporary poultry farming and health. Poultry farming: one of the largest sectors of animal farming is growing tremendously faster with innovations in farming practices. These changes arising from better health use pine antibodies to reduce infectious diseases, enhanced rate of growth, and feed conversion ratio [1]. GENERAL The article under analysis provides benefit of its information in the issue of antibiotics in poultry farming explicating, at the same time, the concerns associated with its usage and consequences for animal health, people's safety and environment. Traditionally, antibiotic was first used in poultry farming in the early 1940s and they were used mainly for combating diseases. Finally, they started being applied not only for medicinal purposes, but for fattening, and thus the usage rate increased optimal rate. They include; Salmonella, Escherichia coli, Campylobacter and Mycoplasma; all of which are detrimental to poultry production. As such, by avoiding these infection, antibiotics enhances the health and production efficiency of poultry birds in as far as meeting the world's demand for chicken and egg is concerned [2].

Antibiotics improve feed conversion rate in that poultry raise their weight more efficiently thus requiring less feed. This is more so given that feed costs are often one of the largest inputs to the production process within this sector. In the process, antibiotics have greatly fostered enhanced economic outlooks to the poultry farming, affordably adding up to the poultry products. Nonetheless, the increasing application of antibiotics in poultry chancing has become a trend that will trigger new health challenges such as antibiotics resistance [3]. Long evolution of resistant bacteria has been reported due to over or improper medication which makes people wonder whether the utilization of antibiotics in making foods sustainable or not. Different organizations continue to decree on the overuse of antibiotics to avoid unnecessary spread by setting up health policies that endorse for the use of enhanced methods to maintain poultry health and flocks growth. This review seeks to understand beyond the utilization of antibiotics in poultry farming especially the benefits associated with its use but also look at the several issues associated with the emergence of antibiotic resistance, and whether there is any other option that would help to save the poultry farming [4].

THE USE OF ANTIBIOTICS IN THE TREATMENT OF POULTRY HEALTH

Poultry need antibiotics to control and treat bacterial diseases, which infect the birds mostly by ingestion of contaminated feed and water. The poultry especially in intensive production system are prone to different diseases from pathogen that threatens production and could lead to losses. One of the more positive changes since the discovery of antibiotics has to do with poultry health especially since there have been complete solutions to diseases that affected birds. Another area of usefulness of antibiotics is controlling bacterial diseases in poultry health. In poultry farming, bacterial pathogens including; Escherichia coli, Salmonella, Campylobacter, and Mycoplasma cause severe illness in birds. These infections lead poor growth, high mortality rate and contaminated meat production which is a worthy off the poultry. These pathogens can however be controlled by the use of antibiotics to reduce the prevalence of diseases and hence healthier stocks a flock [5].

Apart from management of diseases, antibiotics are used in the prevention of diseases with specific reference to the prescribed transportation, stress, and /or density or change of environmental enclosures. Stress on its part affects the immunity of poultry hence develops in them a prone to infections. Pulse antibiotic administration does switch off this danger and keep poultry healthy and productive in such conditions. Antibiotics also have a use in preventing low-level infections – the infections that are not overt, but which have a negative effect on growth and output. Here, antibiotics assist in combating the subtle pathologies that would otherwise cause ill health among the birds; this aspect is very important, especially concerning production [6]. However, antibiotics in poultry care has to be used sparingly Antibiotics are useful in the management of poultry health in the following ways. Again, when taken in the wrong portions or in large amount, it may contribute to antibiotic resistance a factor that affects animal and human health. Bearing in mind the opinions of veterinarians and actions permitted by regulation authorities, antibiotic use should be reasonable in poultry farming [7].

GROWTH PROMOTER AT POULTRY; THE QUESTIONABLE USE OF ANTIBIOTICS

The use of antibiotics in management of diseases form one area where antibiotics have been used, secondly antibiotics have also been used to enhance the growth of poultry through the use of growth promoter's feed conversion. This paper focuses on the use of antibiotics in poultry feed has been widely used to enhance growth rates and operation performance; thereby increasing the viability of the poultry industry. Because antibiotics when given at low levels act as growth promoters in that they aid digestion and nutrient absorption, feed conversion is improved in poultry [8]. This results in the fact that birds gain weight more quickly, and the coefficients of feed conversion are higher, and, therefore, compared to the feeder, poultry needs less feed for market weight. Therefore farmers realize cost cutting and improvement in their returns hence the name one stop shop.

The ability of antibiotics to promote growth has been most useful in the poultry business where the birds are often reared at high density and their environment contains factors that would otherwise limit growth. In other words, saving the birds from losing its growth aptitude due to subclinical infections or general health stressors is achieved by the use of antibiotics [9]. However, the administration of antibiotics as promoters of growth has been a matter of concern especially because of possible antibiotic resistance. Since more reports of resistance to antibiotics used in humans and animals are increasing, many countries and regions of the world have called for or implemented policies to ban or control the use of antibiotics for promoting growth in the poultry industry. This trend has led to search for ways of sustaining a healthy growth of birds without using antibiotics for example through better bio-security, feeding and other management factors [10].

THE EMERGENCE OF ANTIBIOTIC RESISTANT IN POULTRY INDUSTRY

One of the biggest issues of the contemporary agriculture is antibiotic resistance, which is a significant problem of poultry production. Genetic fluidity in bacteria due to the mobilization of antibiotic resistance genes and self-transferable plasmids has

been over exploited by using antibiotics in birds, and poultry wastes. This is a situation in which bacteria develop ways and strategies to counter act the antibiotic that are used in the treatment of infections. In poultry farming this is a very dangerous thing since it leads to Antibiotic resistant bacteria [11]. Zoonotic resistant bacteria in poultry can transmit to human through the food chain either through consumption of the food products contaminated with the bacteria or through the environment. The transmission of resistance is a particularly large threat to public health as these strains are much more difficult if not impossible to treat in humans. In the development of resistance, those which include antibiotics overuse and misuse for; not adhering to the prescribed dosage and using antibiotics for non-therapeutic purposes bear great responsibility [12].

Among the most typical examples, the reader is offered the growth of the resistant strains of Salmonella and Campylobacter – bacteria that are associated with the presence of poultry and can cause foodborne disease in humans. As a result of the above factors, many countries and regions have put in place the regulation of antibiotic use in poultry and; including a ban on the antibiotic used for growth promotion. To reduce the antibiotic use on animals to address the problem of resistance farmers have shifted to other practices including bio-security, vaccination, and enhancement of avian and swine management and feeding practices [13]. These measures are designed to decrease the demand for antibiotics and preventing formation of resistance at the same time.

DIFFERENT STRATEGIES TO THE USE OF ANTIBIOTICS

Since people's concern to antibiotic resistance increases there is rising interest in providing a non-antibiotic approach for the poultry farming. The goal is to preserve poultry health and production but reduce the likelihood of resistance and adverse consequences to poultry and people. Several viable strategies have been discovered, through which the use of antibiotics can be minimized. Probably the most extensively covered option is the use of probiotics and prebiotics. Probiotics are defined as the living microorganisms which, when consumed in adequate numbers, confer a health benefit to the host through a modulation of the gut micro biota and by stimulating the recipient's immune system [14]. Conversely, prebiotics are just food components that act as food to the friendly bacteria in the gut or enlarged intestines. When taken together, these supplements would go a long way in preventing infections of the gut while boosting other natural immune barriers against the pathogens.

Another favorable approach is the vaccine approach. Some of the diseases affecting poultry can be prevented by immunization hence greatly cutting on the use of antibiotics. For instance, vaccinations for the Salmonella and Avian Influenza established that their infection incidences in poultry can be reduced less using antibiotics. Further, phytogenic (plant extracts) and enzymes are emerging as good options due to their role in health and immune stimulating properties in gastro intestinal tract reducing reliance on antibiotics [15]. Some of the natural plants extracts include essential oils, garlic and oregano which have bactericidal effects may be used to improve health of poultry. Enhancing bio security and management practices must act as a key approach towards the need for antibiotics. A good way to reduce disease prevalence and thus decrease antibiotic use is to focus on good hygiene sanitizations, reducing stress, good stocking densities and correct feeding regimes. Collectively, these and other such systems as part of an integral model can help create and program a series of less dependent and irresponsible methods of poultry farming with low reliance on antibiotics and healthier birds [16].

REGULATORY AND ETHICAL CONSIDERATIONS

This is not only a problem but is also a problem of regulation and ethics too. A number of countries and intergovernmental organizations have made ruling and law meant to address possible cost associated with use of antibiotics in the animal feeds particularly in poultry farming. Some of the major sub themes that have been found under the category of regulatory focus are As a result, non-emergence of antibiotic resistance is one of the important regulatory goals. Specifically, all countries have put in place stringent measures to control the use of antibiotics more so those that are crucial in human lives [17]. For instance, antibiotics used in growth promotion are banned since the year 2006 in European Union. In the US, FDA has polices on antibiotics in feed namely; on the other hand, antibiotics can only be given by a veterinarian. These regulations have been put in place as a way of

reducing the levels of contracting resistant bacteria something that is very dangerous to humans [18].

On ethical aspect, the use of antibiotics in poultry farming business is a big concern of the animal and the people. On production of chicken, misuse of an antibiotic results to drug residues in poultry food which in turn has potential effects on the health of its consumers? The concerns of morality perceived from antibiotic treatment and administration, not for medicinal reasons but for productive reasons, are still a topical issue as far as farmers, consumers and people responsible for health care are concerned [19]. Customers are waking up to the usage of antibiotic in poultry and they want poultry products which are free from antibiotics or those that have got organic certifications. However, when attempting to overcome these legal impediments and ethical issues the poultry industry encounters a challenge, which is to generate the requisite stock and feed consumers safely, while providing for their welfare. Scientific research as well as practice of new and even stricter rules of disclosure is necessary to safety both the animal and the consumer.

CONCLUSION

The use of antibiotics in production poultry farming has gone a long way in enhancing improvement on poultry health, growth rates and feed conversion hence boosting production expansion of the industry. All this development could not have happened especially where cheap poultry products are available yet the main tool of control of bacterial infections and diseases is antibiotics. However, their availably has also come with lots of problems with regards to the issue of resistance to antibiotics which is fast becoming a major cause of concern as a threat to both animal and human beings' lives. Because pathogens have continued to develop resistance to antibiotics, it is now about time to seek for other methods of disease control and growth promotion. Some of the nice strategies where presented here as hope on reducing fooled on antibiotic but at the same time keeping health and productivity of poultry involves the use of probiotics, vaccines, phytogenics and better bio-security measures. And more so worries about sustainable practices and even more sensible utilize of antibiotics is the future of poultry production.

To check these, and other associated matters, there have been assessments with standard setters all over the globe putting special limits on the administration of antibiotics in an effort to prevent resistance and promote the welfare of people. Such regulations along ethical aspects of animal's treatment and customer protection are now taking the helm of poultry farming. The labeling of antibiotic free products and the awareness of antibiotic misuse has been increasing, and so the industry has to respond to the change of regulation and the market. Antibiotics will be compulsory for a long time in the poultry to certain extent but the need of antibiotics, the hunt for better substitutes for them and especially the practice of safer methods to prevent the illnesses causing the production of poultry should be well attained to keep the next generations healthy.

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